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THE INFLUENCE OF ADVERTISEMENT FAMILIARITY AND ORIGINALITY ON VISUAL ATTENTION AND BRAND MEMORY

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ABSTRACT

Based on Mandler's theory of schema organization and previous visual attention research, we formulate and test hypotheses about the impact of ad familiarity and ad originality on attention and memory for print advertisements. To that end, one hundred and nineteen consumers browsed through two consumer magazines containing 68 print advertisements. Attention to the ads and their brand, picture and text components was assessed through infrared eye tracking. Trained judges rated the ads independently for familiarity and originality. In support of the hypotheses we find a sharp attention decline with ad familiarity, which is largely due to a reduction in attention to text. Originality of ad execution serves as a buffer against the negative influence of ad familiarity on attention, but only for the brand and picture components. The reduction of attention to the text is even larger for original than for unoriginal ads. Moreover, over and above their indirect influence through visual attention patterns, ad familiarity, ad originality and their interaction had a direct influence on brand memory.

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"The most successful advertising is voluntary attended to - what a former advertising professor, Charles Mauldin, used to call the "Hey, Martha" phenomenon. This is the kind of ad that finds the viewer or reader calling out: "Hey Martha, come and see this." (Moriarty 1986, p.158)

What makes the viewer call for Martha? And what makes the ad worth looking at in the first place? Copywriters and art directors believe that originality of advertisements is the key to gaining and retaining attention. They consider original ads the best way to break through the competitive clutter in the media, and to prevent attention decrements when advertisements become familiar after repeated exposures (*e.g.*, Bernbach, in Higgins 1965; Caples 1997). Original ads are claimed to result in higher advertising effectiveness, precisely because they continue to draw attention where other ads wear-out (Kover 1995). Ogilvy (1983) even recommended using original ads more frequently, because they would wear-out less quickly. However, to our knowledge these beliefs have not been tested empirically. This study aims to fill this void.

First, prior results indeed suggest a sharp decline in the attention that consumers pay to advertisements across repetitions (*e.g.*, Craig, Sternthal and Leavitt 1976; Grass and Wallace 1969; Greenberg and Suttoni 1973; see Pechmann and Stewart (1989) for an integrative review). Pieters, Rosbergen and Wedel (1999) recently observed, across three exposures, a 50% reduction in the average time consumers attended to print ads. That reduction is significant because it may preclude many higher order cognitive processes that are responsible for brand attitude and knowledge formation (Stewart 1992). But is this attention drop the same for all components of print advertisements? If the reduction is limited to ad components that are less critical for achieving the communication objectives, and leaves more central components (like the advertised brand) unharmed, the consequences for ad effectiveness may be far less dramatic

than previously assumed. This is the first question our study addresses. We examine the influence of ad familiarity on attention to advertisements as a whole and to the key brand, picture and text components within the advertisements.

Second, does originality of an ad really makes consumers attend more, and does it prevent or postpone wear-out? To our knowledge this central belief in creatives' implicit theories (Kover 1995) has not been tested empirically. Previous studies have documented, among others, the effect of executional uniqueness on the incidence of zapping (Olney, Holbrook and Batra 1991) and the effects of message complexity (Anand and Sternthal 1990; Cox and Cox 1988) and executional variations (Haugtvedt, Schumann, Schneier and Warren 1994) on ad liking under repeated exposures. But no study has examined the joint influence of ad familiarity and originality on attention to advertisements and their components. This is our second research question.

Attention effects of originality and familiarity would be inconsequential if they have no measurable downstream effects on the processing of the ads. Our third question concerns the influence of ad familiarity and ad originality on brand memory. To be effective, advertisements need to leave durable traces of brands in consumers' memory (Keller 1998). Attention to advertisements and their components builds such brand memory (Wedel and Pieters 1999). The third question concerns the extent to which ad familiarity and ad originality influence brand memory directly and indirectly through their effects on attention. Based on Mandler's (1979, 1982, 1995) theory of schema organization and findings from previous visual attention research, we formulate and test hypotheses of indirect effects of ad familiarity and originality on brand memory through visual attention patterns as well as of their direct effects, independent of such patterns. This dual impact of familiarity and originality is suggested by Mandler's theory but has remained untested to date.

Combining these questions, the current study aims at making several contributions to advertising theory and research. We examine the role of ad originality, which has scarcely been studied in recent years (McQuarrie and Mick 1999; Zinkhan 1993) despite its expected impact on advertising effectiveness. Rather than comparing specific types of original ads with respect to their impact on attention, we investigate consumers' visual attention and memory for a large, representative sample of print advertisements, classified as original or unoriginal, which allows us to draw generalizable conclusions. We offer new insights in the attention processes underlying advertising effectiveness, and contribute to a better understanding of advertising wear-out, which is claimed to be a major determinant of the diminishing returns of repeated ad exposures (Batra, Aaker and Myers 1996; Rossiter and Percy 1997). This may contribute to the formulation of remedial strategies (Haugtvedt, Schumann, Schneier and Warren 1994).

To that aim, we analyze eye-tracking data of 119 consumers for 68 print advertisements and their subsequent memory for the advertised brands. Advertisements were shown in their natural context in consumer magazines, and eye movements were monitored while consumers freely paged through the magazines. Memory was assessed in a recognition task in which consumers were asked to identify brand names from masked images of the advertisements (Krishnan and Chakravarti 1999). Experts judged the advertisements as familiar or unfamiliar and original or unoriginal. In the next sections we introduce the conceptual framework and offer the hypotheses to be tested. We then test the hypotheses and discuss the implications of the findings.

CONCEPTUAL DEVELOPMENT

Original advertisements deviate in their message execution from what the audience expects for the brand, product, medium or advertising at large, in ways that are considered to be

fresh, novel, "one-of-a-kind." Within cultural boundaries there is considerable agreement what original artifacts are. Originality is "never the private, hidden experience it was once believed [but it] is an intrinsically shared experience" (Albert and Runco 1990, p. 261), which is a prerequisite to apply it in mass advertising. If the norms of, for example, high art are applied, the term "originality" may be too grand for much that is done in advertising (Gross 1972; Ogilvy 1983; White 1972). In the forms of advertising, originality involves, as Zinkhan (1993, p.1) formulated, "thinking up (dreaming up) new ways to present selling propositions." To present selling propositions in a fresh way, advertisers use techniques of "defamiliarization" to stimulate the audience to think "about a familiar issue from an unexpected perspective" (Scott 1994a,b). A recent development that takes this idea to the extreme is "shockvertising", which attempts to deliberately shock people through its message content and execution (see for example the controversial 1999 Nike ad campaign). Techniques of defamiliarization include novel rhyme, metaphors and other rhetorical figures (McQuarrie and Mick 1999), wordplay, humor and so forth. The techniques operate on the perceptual features of advertisements like the number, size, colors, positions and types of words and pictorials used (Moriarty 1986). But no single technique or operation on the perceptual features uniquely identifies ad originality. Ad originality is the Gestalt label for the effect of a collection of related content and form features of advertisements (Albert and Runco 1990).

How do the familiarity and originality of advertisements jointly affect consumers' visual attention and brand memory? Building on Mandler's theoretical work and on visual attention and memory research, we argue that ad familiarity and ad originality independently and in interaction influence consumers' visual attention and memory for advertising.

Integration and Elaboration

In the process of perceiving and interpreting an advertisement, consumers build up a mental representation or schema of the ad, which will guide its further and repeated processing. This will determine what is being attended within the ad and to which extent, and it will influence memory performance. Mandler (1979, 1982, and 1995) distinguishes the integrative dimension and the elaborative dimension of schema organization. We expect both dimensions to influence attention as well as memory for advertised brands.

The integrative dimension captures the degree to which the components of a stimulus or the stimuli in a set form a coherent unit. Ad familiarity is a determinant of schema integration (Mandler 1979, 1982). Integrated stimuli express a high degree of within-unit organization. They are congruous with established knowledge and are accessed as a single unit (chunk) in memory. As a result familiar, integrated, stimuli are more readily recognized, need less attention to be understood, and fewer processing resources to store and keep them into memory. According to Krugman (1972) "three exposures may be enough": consumers loose interest in a television commercial as soon as they have extracted the information allowing them to identify the advertising brand and the gist of the message. Symbolic and pictorial information is most conducive to this aim. Pieters, Rosbergen, and Wedel (1999) argue that for internally paced media, such as print, where the viewer controls the exposure duration, consumers will rapidly adapt to increasing familiarity by reducing exposure duration.

The elaborative dimension of a stimulus schema (Mandler 1979) captures the degree to which the components of a stored stimulus or the stimuli in a set are interrelated with other information in memory. Elaborated stimuli and their schemas express a high degree of between-unit organization. The originality of the stimulus is a determinant of schema elaboration (Mandler 1979, 1982). Original advertising executions present the brand in association with

objects that have a low prior probability of co-occurrence with the advertised product. For example, the presence of a monkey in an otherwise typical car advertisement is unexpected, and may be considered original. Original ad executions may also deviate from the expectations consumers have built up about typical ads in the product category. For example, an erotic theme may be highly expected and therefore unoriginal for a perfume ad, whereas the same theme may be unexpected and therefore original when the ad is for a personal computer. In addition, original ad executions may deviate from consumers' expectations about advertising in a particular medium or advertising in general. For instance it may be original to insert a cereal ad in a computer magazine or to remove the soundtrack from a television commercial.

At the heart of ad originality lies the incongruity between consumers' pre-existing knowledge and the portrayal of the brand or product in the ad and medium. The incongruity is informative because it presents the consumer with a challenge to understand what the ad is about (Heckler and Childers 1992; Scott 1994a,b). One of McQuarrie and Mick's (1999, p.30) informants expressed her experience with an ad containing a fresh rhetorical figure: "eye catching ... kind of creative because it is something that is familiar and relates to the product and kind of combines them both at the same time." And original ads are expected to do more. Once attention is captured, solving the incongruity in the original ads requires additional attention and will be pleasurable in its own right (Berlyne 1971; Mandler 1982). Furthermore, solving the incongruity in the ad will strengthen the between-unit organization, which facilitates subsequent memory performance directly. That is, because original ads allow multiple readings or interpretations, solving the inherent incongruity in original ads should also stimulate multiple and more distinctive memory nodes (Childers and Houston 1984; Houston, Childers and Heckler 1987). These multiple retrieval paths for original ads should promote better memory

performance, independent of the additional amount of attention devoted to the ads. This suggests the following hypotheses:

H1: Ad familiarity has a negative influence and ad originality has a positive influence on visual attention to advertising, such that familiar ads capture less attention than unfamiliar ads, and original ads capture more attention than unoriginal ads.

H2: Ad familiarity and ad originality have positive direct impacts on memory for the advertised brands, independent of visual attention to the advertisements, such that familiar and original ads have better memory performance, independent of the attention paid to them during the previous exposure.

Interplay of Advertisement Familiarity and Originality

Original ad executions will draw attention on first exposure, but because of the incongruity, we expect them to be challenging on subsequent exposures, as well. In support of this, Pechmann and Stewart (1988) observed that complex and novel ad executions required more exposures for the consumer to understand what is communicated. Anand and Sternthal (1990) observed that complex ads were less vulnerable to attitudinal wear-out, but they did not measure attention. Morrisson and Dainoff (1972) did measure attention, and found that visually complex ads were looked at longer than less complex ads. Additional evidence comes from the literature on scene perception. Friedman (1979) found that incongruent -- and therefore informative -- elements in a visual display continued to attract attention after the scene had been identified, especially in contrast to the time course of attention to expected elements. Incongruent elements will remain "defamiliarized" even after the meaning of the rhetoric figure embodied in the observed incongruity has been extracted. Hence, we hypothesize:

H3: Ad originality acts as a buffer against the decrease in attention due to ad familiarity, such that compared to unoriginal ads, original ads lose less attention when becoming familiar.

How will the interplay of ad familiarity and originality affect the memory performance of advertisements? Because the two dimensions of schema organization are orthogonal, stimuli can be simultaneously high or low on either one. Mandler's (1979, 1982) theory predicts that the interaction between the integrative and elaborative dimension will promote the highest memory performance, because integration (familiarity) promotes easy, automatic access to the relationships among stimulus components and elaboration (originality) promotes multiple pathways through which the stimuli can be accessed. Since original ads require more time to understand and to integrate in consumers' schemas it may take repeated exposures to establish the distinctive memory nodes and multiple paths that facilitate retrieval of original ads (Anand and Sternthal 1990). In other words, if original ads not only wear-out more slowly but also wear-in more slowly, they require more exposures to reach their full memory potential, which is higher than the memory potential of unoriginal advertisements. This suggests the following hypothesis:

H4: Ad familiarity and ad originality have an interactive effect on memory for the advertised brands, in such a way that compared to unoriginal ads, original ads are remembered better when familiar.

The Influence of Familiarity and Originality on Attention to Ad Components

Is the influence of ad familiarity and ad originality homogenous across the key components of advertisements or are some components more affected than others? In line with previous research (Edell and Staelin 1983; Wedel and Pieters 1999) we focus on the brand, pictorial and text components of advertisements. The brand component is defined as all advertisement space devoted to the brand symbols: name, logo or pack-shot. If the brand name appears in the headline or body text of the ad, the name is considered to be part of the brand component. The pictorial component or "illustration" encompasses all ad space devoted to non-

textual information, excluding the pack shot and brand logo. The text component covers all ad space that contains text, excluding the brand name.

Looking at Familiar Advertisements. The distribution of attention across scenes or displays is a function of the expected marginal return in terms of valued information (Kahneman 1973) or pleasure (Berlyne, 1972), even when the viewer pursues a mere visual exploration goal. We expect the marginal returns of attention to the ad components to be affected by ad familiarity. We conjecture that on the first exposure to an ad, consumers search for information that helps to identify it on subsequent exposures, *i.e.*, by establishing a scan-path across the ad (Pieters, Rosbergen and Wedel 1999). On subsequent exposures the identification of the ad and its source becomes dominant (Krugman 1972). The expected marginal return of the ad in terms of information therefore decreases as consumers mainly aim at ad and brand identification. Symbolic and pictorial information is in particular effective for that purpose, much more so than textual information. This has implications for attention to the three ad components to begin with the text component.

Reading is costly and takes up time. Research has established that the number of eye fixations is a close function of the difficulty of processing and understanding the text's message, especially when it is read with the goal of gist comprehension (Rayner 1998). Familiar texts are easier to process and understand, which reduces the number of fixations needed and increases the reading speed (Hyönä and Niemi 1990; Kolers 1976). Once the relevant information is extracted, the consumer is able at re-exposure to verify with a quick glance that the text is identical to what has been seen before, to selectively avoid further reading (Loftus 1983; Rayner 1998) and save time. This suggests a sharp decrement in attention to the textual component of familiar ads.

The processing of pictorial information, a form of scene perception, is less taxing than that of textual information. In addition, scene exploration is less ordered than sequential reading activity (Yarbus and Haigh 1967). Thus, consumers are less constrained in exploring the various elements of a scene in a fixed order. During the initial exposure, the viewer may look for certain meaningful, interesting or stimulating objects in the scene and try to understand the relationship between them. Fixations on different objects in the scene at re-exposure allow further explorations of the pictorial. Fixations on the same objects at re-exposure quickly enforce memory traces of the ad (Friedman 1979). This process should promote a less marked drop in attention to the pictorial component than to the text component as ads become familiar.

Brands constitute the primary means to identify the advertised product. They are saliently displayed using visually distinctive and often familiar logos, which will automatically draw attention (Kahneman 1973). Familiar words in an unfamiliar environment have been shown to attract attention (Christie and Klein 1995), and continue to do so after repeated exposure (Feustel, Shiffrin and Salassoo 1983). In paying attention to a print advertisement, subjects seek to identify the source of the message: the brand. Therefore, if attention decreases due to an ad becoming more familiar after repeated exposure, the reduction in attention to the brand component is likely to be much smaller than the reduction in attention to the text, since the brand component needs to be attended to for identification of the source.

Looking at Original Advertisements. As yet, little is known about the effect of ad originality on visual attention to specific components of advertisements. We expect that the incongruity underlying ad originality will stimulate a significant increase in attention to all three components of advertisements. Ad originality is typically accomplished by the interplay of text and picture components (*e.g.*, Houston, Childers and Heckler 1987; Scott 1994a,b) which should

increase attention to both. Even if only the text or picture component have an original execution, the tendency to perceive advertisements in unity (McQuarrie 1989) and consumers' attempts to resolve the incongruity in the advertisement as a whole (Heckler and Childers 1992) may be expected to promote increased attention to all components. We argue that originality promotes the pleasure and valued information derived from the ad, thus promoting extended visual attention. We thus predict that originality increases the marginal returns derived from the ad to buffer the attention decrement due to familiarity benefiting all three components of advertisements. We test the following hypothesis:

H5: Ad familiarity has no influence on attention to the brand and pictorial but a negative influence on attention to the text, such that familiar ads and unfamiliar ads only differ in the attention paid to text. However, ad originality has a positive influence on attention to the brand, pictorial and the text, such that original ads receive more attention on all elements as compared to unfamiliar ones.

In the next section we describe the data collection procedures and the measures used.

METHOD

Background

Following previous advertising research (*e.g.*, Olney, Holbrook and Batra 1991), the hypotheses were tested by combining independent data on consumer responses to advertisements and on expert judgements of the advertisements in a single analysis. Two independent samples were used to prevent that the evaluation of the advertisements would influence visual attention and memory for them or the other way around, depending on the order of measurement. A sample of 119 consumers was exposed to a set of 68 advertisements while their eye movements were recorded. Ten trained judges identified the familiarity and originality of the advertisements. In addition, they identified the familiarity of the advertised brands and the

appeal of the ads. A large sample of real advertisements in their natural environment in magazines were used, instead of a smaller set of experimentally manipulated advertisements because it is close to impossible to design advertisements that differ in originality but are fully equivalent in content and form, and original advertisements are rare. The large sample of ads allows for a reasonable level of generalizability of our findings. Finally, structural and physical ad characteristics of the ads, such as the surface devoted to each of the ad components, were separately identified.

Advertising Stimuli and Participants

Sixty-eight print advertisements appearing in two consumer magazines in the Netherlands, "Allerhande" and "Elsevier," were the target ads. "Allerhande" is a weekly magazine published by a large retailer. It contains articles about homemaking and shopping. The selected issue contained 112 pages, with 70 print advertisements, of which 28 were full-page or larger. "Elsevier" is a weekly business magazine, similar to Time and Newsweek. The selected issue contained 144 pages, with 71 advertisements, of which 40 were full-page or larger. All 68 full-page or larger ads from the two magazines were used in the study. Nineteen ads were for financial products, 16 for food, 9 for business services, 5 for alcoholic beverages, 4 for personal care products, 3 for detergents and cleansing products, and the rest was for miscellaneous products and services, such as travel agencies, cameras, cars and household appliances.

One hundred and nineteen consumers participated in the eye-tracking part of the study, 64 males and 55 females. Average age of the participants was 38 years. Eight percent had a university degree, 27% had a completed high-school degree. All were native Dutch speakers. Participants were selected by a market research company, and were paid the equivalent of 20

Euro (US$ 20). They had never participated in eye-tracking research before, and had not seen either issue of the magazines before participating in the study.

Eye-Tracking Procedure

Visual attention to the advertisements was assessed with infrared eye tracking. Upon entering the test room, participants were seated at a table in front of the eye-tracking instrument. The magazines were fixed to the table with a small steel wire through the center, to ensure that the participants could freely move through the magazines. To mimic natural exposure conditions, participants engaged in a visual exploration task with internal pacing (*e.g.*, Janiszewski 1998). They could examine, at their own pace, the magazines for stimuli that attracted their attention, without being provided with a specific search goal.

Participants read the following instruction: "We ask you to page through several magazines. You can do this at your own pace, as you would do at home or in a waiting room. We ask you not to read the editorial fine print of the magazine extensively, as this would take too much time. After you have finished paging through the magazines, you can take your choice of magazines home." Each participant paged through four magazines, the two target magazines and two other, unrelated magazines. Order of the magazines was randomized across participants. The magazine paging task took about 30 minutes to complete, on average.

During the visual exploration task, participants' eye movements were recorded using infrared corneal reflection eye tracking (see Muller, Cavegn, d'Ydewalle and Groner 1993 for details). Participants with glasses received special lightweight replacement glasses that allow valid infrared eye tracking. The apparatus leaves participants free to move their head (within a virtual box of about 30 *cm.*) when paging through the magazines. Cameras track the position of the head and eye, allowing continuous correction for position shifts. The instrument registered the number of fixations for each participant and ad component. Fixations are the brief moments

(around 200 *ms.*: Rayner 1998) during visual exploration that the eye is relatively immobile and focuses on a specific area of the visual field. Information intake occurs during fixations, which are considered to be the unit of visual attention (Sperling and Weichselgartner 1995).

Brand Memory Task

After completing the visual exploration task, participants engaged in an unrelated task that took 10 minutes to complete, before performing an implicit memory task (*e.g.*, Richardson-Klavehn and Bjork 1988). Participants were seated individually in front of a NEC 21-inch touch-sensitive monitor to assess their memory for the advertised brands. They received detailed instructions and examples of the task on the monitor. One hundred and seventy-eight advertisements, including the 68 from the two target magazines, were shown in random order on the screen. The image of the advertisements on the monitor was processed to have it appear like a pointillist painting or a slightly out-of-focus image. Each ad was accompanied by four brand names in the same category, one of which was correct. The participants' task was to identify the advertised brand by touching its name on the screen. Accurate/inaccurate identification of the brand was recorded for each advertisement and participant.

While the specific memory task chosen is not constrained by our hypotheses, our choice for an implicit memory task was based on the following reasoning. First, the goal of advertising is to promote memory for the advertised brands -indirect memory- instead of memory for the advertisements -direct memory-. Further, indirect memory measures tend to have a lower threshold (Cowan 1995) and thus are more sensitive to the small effects of advertisements in highly competitive media. Also, in making daily decisions for low-involvement products (such as soups and soaps), consumers will tend to invest little effort in retrieving explicit information from advertisements, and instead may rely more heavily on their indirect memory (Pratkanis and

Greenwald 1988). The specific task used here is a "case-F recognition test" (Krishnan and Chakravarti 1999): the target ads were shown masked, participants were instructed to identify the advertised brand in the ad, instructions did not refer to the ad viewing episode, and other distracting cues were present.

Expert Judgement of Advertisements

Ten MBA students, 5 males and 5 females, who were unaware of the research hypotheses, evaluated the familiarity and originality of the 68 advertisements. Prior to the task, judges received detailed descriptions of concepts and were trained on a set of separate advertisements. They individually assessed the familiarity and originality of each advertisement, and provided measures of brand familiarity and ad appeal. Advertisements were randomised in the judgement task to control for order and fatigue effects.

Judges indicated for each ad whether they had seen it before (five-point) and whether it was familiar to them (four-point). Reliability of the measures across the ten judges was respectively .83 and .85. After standardising, the scores were averaged and median splits on the overall score were used to distinguish unfamiliar (0) from familiar (1) ads. In addition, judges indicated for each ad whether they considered it an original ad (two-point). Alpha across the ten judges was .83. Ads were categorised as original (1) or unoriginal (0), based on a majority vote. Seventeen ads were judged to be original (25%), 51 (75%) were judged to be unoriginal. In Figure 1 two original (top) and two unoriginal ads (bottom) from the sample are shown.

[Insert Figure 1]

The original ad at the top-left promotes a brand of pension advice service. Usually pension plans and services are targeted at men and promoted by emphasising the future (dreamlike) financial independence or security and depicting that. This ad depicts a young

mother and daughter trying to find their bicycle from a bunch of bicycles. The headline says: "And in the meanwhile." The body text explains that even when being in the centre of life and its small hassles, it is important to think about one's future pension needs. The original ad at the top-right promotes a brand of bread spread. It exhibits the ingredients of the product in the form of a food pie chart, which forms the peace symbol, with several pack shots around it. The headline says: "The Pie of Heinz Sandwich Spread." The body text mentions that the product contains the daily-required amounts of nutrients and is low on fat, and that the product comes in fresh, sour and sweet variants, which are pictured around the food pie (the food pie is the Dutch equivalent of the US food pyramid).

The unoriginal ad at the bottom-left promotes a camera brand. It depicts a woman with a hat-dress combination, photographed by the camera below. The headline says: "Nikon F5: 3D Colour Matrix Metering System: World record." The body text describes the features of the camera. The unoriginal ad at the bottom-right promotes a brand of hair colouring product. It shows the supposed effect of the product on a model's hair, two pack-shots and a price reduction. The headline says: "Attractive Hair Colors, Poly Color." The body text mentions that the product contains no ammonia and that the results last for 6 "shiny" weeks.

The seventeen original ads used a variety of techniques to be incongruous and to stand out. Some ads had a figural text with a literal picture (an ad for personal banking asked the reader what the "temperature" of their savings was. It pictured an opened refrigerator with money, and claimed that this bank could make the savings "hot"), while other ads had the opposite. Various rhetorical figures were used, e.g., metaphors (an ad for a research firm mentioned that other firms, not theirs, over-burden people. It pictured a stressed one-man's band clown) and irony (one ad for a small French cheese pictured an excited person eating the product. It read: "What do you mean exaggerated, have you tried it?").

In addition to ad familiarity and originality, judges indicated the familiarity of the advertised brands and the appeal of the advertisements. Ad appeal was included because Mandler's (1979, 1982) theory suggests that incongruity is positively correlated with stimulus attractiveness and Meyers-Levy and Tybout (1989) found that moderate incongruity promoted positive evaluations in a new product context. Brand familiarity was included because it is correlated with ad familiarity (familiar ads for unfamiliar brands will be rare). Judges indicated for each ad whether it was appealing to them or not (two-point). Alpha across the ten judges was .78. Ads were categorised as appealing (1) or unappealing (0), based on a majority vote. Twenty ads were judged to be appealing to look at (29%), 38 were not. Finally, judges indicated for each advertised brand how well known it was to them (five-point) and whether it was familiar to them (four-point). Alphas across judges were respectively .96 and .93. After standardising, scores were averaged and median splits were used to distinguish familiar (1) from unfamiliar (0) brands. Familiar brands included national brands, and international brands such as Martini and British Airways. Unfamiliar brands included national brands, and international brands such as Eduard Dressler and Rolf Benz.

Structural and Physical Features of Advertisements

If ad familiarity and originality covary with structural and physical features of advertisements (Finn 1988; Holbrook and Lehman 1980) that can affect visual attention and brand memory independently, they need to be controlled for to ensure that findings can be attributed unequivocally to ad familiarity and originality. The following structural ad features were assessed: the serial position of each ad in the magazine (indicated by its page number), whether the ad was a cover ad or not (inside-front, inside-back and outside-back), whether it was located left or right on the double page. The following physical ad features were identified: the

surface size of the brand, pictorial and text, and the whole ad (in dm^2 = 100 cm^2), the number of distinct pictorials in each ad, and whether the ad was "heavy copy" (dominated by headline and body text) or not.

RESULTS

Controlling for Brand and Advertisement Covariates

Of the sixty-eight advertisements in the sample, 34 were both unfamiliar and unoriginal, 12 were unfamiliar and original, 17 were familiar and unoriginal, and 5 were familiar and original (χ^2 (1) = .09, *ns.*). As expected, ad familiarity was associated with brand familiarity. There were no familiar ads for unfamiliar brands in the sample, but the sample did contain almost equal numbers of unfamiliar ads for unfamiliar brands (n = 23), unfamiliar ads for familiar brands (n = 23), and familiar ads for familiar brands (n = 22). Also, as expected, original ads were more likely to be appealing. Half of the original ads were appealing versus only one fifth of the unoriginal ads (χ^2 (1) = 6.044, $p < .05$). On average, the advertisements were 4.41 dm^2 in size. Familiar ads in the sample had a larger text surface than unfamiliar ads (.98 dm^2 vs. .71 dm^2, t-value = 2.706, $p < .01$). None of the other structural and physical features was significantly associated with ad familiarity or originality. Based on these results, we used brand familiarity, ad appeal, and the surface size of the ad components, as covariates in the subsequent analyses to partial out their effects.

Visual Attention to the Advertisements

On average, consumers fixated 8.38 times on each advertisement (average gaze duration = 1.65 seconds). This is comparable to what has been found in previous research using visual exploration tasks under natural exposure conditions (Kroeber-Riel 1993; Rosbergen, Pieters and

Wedel 1997). But it is significantly shorter than exposure duration in experimental studies (*e.g.*, Houston, Childers and Heckler 1987; Pieters, Rosbergen and Wedel 1998: study 1). Support for our hypotheses under these low overall levels of attention adds to the credibility of the results.

We tested our hypotheses on the influence of ad familiarity and originality on visual attention with hierarchical regression analysis (Bryk and Raudenbusch 1992; Goldstein 1995), since that allows us to distinguish the effects of between and within-subject variation in testing the effect of the experimental and confounding variables. All models were estimated with maximum likelihood using the program *HLM* (Bryk, Raudenbusch and Congdon 1996). Criterion variables in the analyses were the fixation frequencies on the advertisements as a whole and respectively on the brand, pictorial and text. The fixation frequencies were assumed to follow a Poisson distribution, so that hierarchical Poisson regression equations were estimated (Long 1997) [1]. Predictor variables were ad familiarity, ad originality, their interaction, as well as the covariates. Two models were estimated. In the first model, main effects of ad familiarity, originality and the covariates were included. In the second model, the interaction between ad familiarity and originality was added to the first model, so that the statistical significance of the interaction effect could be determined with Likelihood-ratio χ^2 - tests.

The frequency of fixations on the advertisements and their components and the accuracy of brand memory are presented in Table 1. Summary results of the regression analyses are presented in Table 2. Coefficients and *t*-values for the main effects of ad familiarity and originality are taken from the first model; coefficients and *t*-values for the interaction between ad familiarity and originality are from the second model. The exponent of the presented coefficients represents the odds of the effect that a specific variable has on the expected fixation frequency. For example, the odds of the effect of ad familiarity in the first column, *exp*(-0.114) = 0.892, shows that the fixation frequency on familiar ads is 0.89 times that of unfamiliar ads.

[Insert Tables 1 and 2]

In support of hypothesis 1 the results in Table 2 show that the influence of ad familiarity on attention to the advertisement as a whole is significant and negative (odds 0.892, $p < .001$), while the influence of originality on attention is significant and positive (odds 1.096, $p < .001$). Consumers thus attend longer to unfamiliar than familiar ads (a difference of 0.83 fixations on average, see Table 1) and longer to original than unoriginal ads (a difference of 2.52 fixations).

In support of hypothesis 3, ad originality acts as a buffer against the attention drop due to ad familiarity (odds 1.21, $p < .001$), although the differences shown in Table 1 are modest. To examine the interaction effect further, we estimated hierarchical Poisson regression models separately for unoriginal ads and for original ads with ad familiarity and the covariates as predictors. In support of hypothesis 3, familiar ads receive less attention when they are unoriginal ($\beta = -.153$, $t = -4.957$, odds 0.858, $p < .001$) but not so when they are original ($\beta = .008$, $t = .185$, odds 1.001, *ns.*).

Table 2 shows that the surface of ads and their components have significant effects on the fixation frequencies, the larger ads and their components are the more fixations they receive. To account for this we calculated the fixation density per ad and ad component, defined as the fixation frequency per unit surface of the ad or ad component (in dm^2). Fixation density is a measure of the efficiency of ads and ad components in attracting attention, which is important because advertising costs are related to ad surface. Fixation densities are presented in Table 1, and shown in Figure 2 for the advertisement as a whole. Figures 2 reveals that the fixation density is virtually the same for original-unfamiliar and original-familiar ads, but significantly lower for unoriginal-familiar ads as compared to unoriginal-unfamiliar ads. These results support hypotheses 1 and 3, and underline the efficiency gain obtained through original advertising.

[Insert Figure 2]

Visual Attention to the Components of Advertisements

Table 1 presents the average fixation frequency on each of the three key ad components, and Table 2 presents the results of the hierarchical Poisson regression models for each ad component.

In support of hypothesis 5, familiar ads receive less attention to the textual component (odds 0.603, $p < .001$). The difference in fixation frequency on the textual component of unfamiliar and familiar advertisements was 0.58 fixations, and the difference in fixation density was 2.90 (Table 1). After controlling for the covariates, an interesting effect was identified: the influence of ad familiarity on attention to the pictorial was positive (odds 1.116, $p = .002$): the difference in information densities between unfamiliar and familiar ads was 0.06. Although the positive effect was unexpected, it is in line with hypothesis 5, that familiar ads do not receive less attention for the pictorial. In further support of hypothesis 5, ad originality had a positive influence on visual attention to the brand (odds 1.113, $p = .011$), to the pictorial (odds 1.160, $p < .001$), and the text (odds 1.300, $p < .001$) after accounting for the covariates. The fixation frequency on the text and the pictorial was higher for original than for unoriginal ads, and the fixation densities were higher for all three components.

We conjectured that the buffer effect of ad originality would be the same for each ad component. In support of this, Table 2 shows that the interaction effect of ad familiarity and originality was significant and positive for the brand (odds 1.677, $p < .001$) and the pictorial (odds 1.553, $p < .001$). However, the interaction effect was negative for the text component (odds 0.683, $p < .001$). To examine the interaction effects further, Poisson regression models were estimated separately for unoriginal and original advertisements, controlling for the

covariates. To support the interpretation of results, we present the fixation densities for each ad component in Figures 3 to 5.

[Insert Figure 3 to 5]

As expected, ad familiarity had a significant negative effect on fixation frequency to the brand component of unoriginal ads (β = -.219, t = -4.339, odds 0.803, $p < .001$) and no effect on fixation frequency to the brand component of original ads (-.117, t = -1.261, *ns.*). So, attention to the brand replicates the buffering effect that we observed for attention to the advertisements as a whole, as a comparison of Figures 2 and 3 shows. However, the results are different for the pictorial and the text. Ad familiarity had no effect on fixation frequency to the pictorial for unoriginal ads (β = .029, t = .685, odds 1.029, *ns.*) but a significant positive effect for original ads (β = .314, t = 5.402, odds 1.369, $p < .001$). This means that in fact consumers tend to fixate more frequently on the pictorial of ads that are both original and familiar, as Figure 4 and Table 1 show. This interactive effect explains the unexpected positive main effect of familiarity on the pictorial reported above: it is caused by the positive effect of familiarity for original ads.

Ad familiarity had a negative effect on the fixation frequency to the text both for unoriginal ads (β = -.388, t = -9.256, odds 0.678 $p < .001$) and for original ads (β = -.817, t = -12.743, odds 0.442, $p < .001$), but the effect for original ads is twice as big. Figure 5 shows this strong attention decrement due to ad familiarity. It reveals in addition that while the text component of original - unfamiliar ads receives significantly more attention than the text component of unoriginal - unfamiliar ads, the difference between original and unoriginal ads disappears for familiar ads. Apparently, when original ads become familiar the attention bonus for the text component is washed out.

In combination, the increase in attention to the pictorial and the decrease in attention to the text of original familiar ads cancel each other. Jointly with the attention to the brand, this

produces the buffer effect for attention to the ad as a whole. These results are not due to differences between ads in the familiarity of the advertised brand, in their appeal or in the size of their components because these were all statistically controlled for. Before offering explanations for the differences between attention to the pictorial and text components of advertisements, we first examine the effect of visual attention, ad familiarity and ad originality on brand memory.

Influence of Visual Attention, Ad Familiarity and Originality on Brand Memory

To test hypothesis 2 and 4 that ad familiarity, originality and their interaction contribute to brand memory directly independent of visual attention patterns, hierarchical logistic regression models were estimated. These models were estimated to separate within and between-subject variation. Logistic regression models were used because the dependent variable, memory response, is binary (accurate-inaccurate). A set of regression models was estimated following Baron and Kenny (1986) to test direct and indirect effects appropriately. The results are presented in Table 3.

[Insert Table 3]

The model tests provide consistent support for hypotheses 2 and 4. They reveal that attention to the ad components significantly enhances accurate brand memory (Model 2 - Model 1, $p < .001$). In addition, they show that ad familiarity, originality (Model 5 - Model 2, $p = .05$) and their interaction (Model 6 - Model 5, $p < .001$) contribute significantly to accurate brand memory, after the effects of attention to the ad components and their surface sizes are taken into account. Finally, attention to the ad components contributes significantly to accurate brand memory even when ad familiarity, ad originality (Model 5 - Model 3, $p < .001$) and their interaction (Model 6 - Model 4, $p < .001$) are taken into account. This shows that ad familiarity, ad originality, their interaction and visual attention to the ad components all contribute directly

to accurate brand memory and that in addition, ad familiarity, ad originality and their interaction contribute to accurate brand memory indirectly through their impact on visual attention to the ad components.

Parameter estimates of Models 5 and 6 are presented in Table 4 to examine the size and sign of the effects. The parameter estimates are to be interpreted as the log-odds ratios of accurate brand memory, i.e. the effect of familiarity is $exp(1.87)= 6.488$, increasing the odds of accurate identification of the brand by this factor. Strong positive effects of ad familiarity (odds 6.488, $p < .001$) and of the interaction between ad familiarity and ad originality (odds 3.333, $p < .001$) are apparent. Additional logistic regression analyses revealed that ad familiarity had a significant, positive effect both for original advertisements ($\beta = 2.140$, $t = 10.875$, odds 8.500, $p < .001$) and unoriginal advertisements ($\beta= 1.606$, $t = 15.964$, odds 4.982, $p < .001$). The interaction effect is displayed in Figure 6. Brand memory for familiar, unoriginal ads is almost twice as high as brand memory for unoriginal, unfamiliar ads (33% versus 18% accurate recognition). In support of hypothesis 4, brand memory for original, familiar ads is highest and much higher than brand memory for original, unfamiliar ads is (56% versus 14% accurate recognition).

[Insert Figure 6]

DISCUSSION

Only recently have consumer researchers begun to examine visual attention processes using detailed, direct measures of attention and large samples of real advertisements under natural exposure conditions. This research holds the promise of gaining insight into the fast selective processes that consumers engage in when being exposed to marketing stimuli in the real world. Such selective processes precede the higher-order cognitive and affective responses

that marketers are eventually aiming for, and they preclude them when something goes wrong in those first steps. Insight in these processes fills a crucial gap in our knowledge of advertising processing, and it advances the theory of advertising effectiveness. Eye-tracking research offers the opportunity to document the processes of attention to ad components and their effect on memory carefully.

This study is the first to document the eye-catching qualities of familiar and original advertisements under natural conditions in densely cluttered media vehicles. We find a negative effect of ad familiarity on visual attention and a positive effect on brand memory. Ad familiarity promotes a drop of attention to advertisements, almost completely due to a drop of attention to the textual component. This detrimental effect of ad familiarity on attention is important in the light of the little amount of attention paid to the advertisements in our study, which is due to the natural exploration task and the high levels of competitive clutter in the media vehicles. Even under these low overall levels of attention familiar advertisements attracted less attention, in particular to their text. Ad familiarity caused a striking improvement in recognition of the advertised brand in memory tasks. Familiar ads were identified accurately twice as often as unfamiliar ads. Because familiar ads already have strong memory traces, less attention is required to keep them in memory, and to ward them against the negative effects of competitive clutter during memory retrieval.

Ad originality positively affects both visual attention and brand memory. First, ad originality promotes a significant increase in attention to the advertisement. Original ads receive 30 percent more fixations than unoriginal ads: a difference of almost 3 fixations on average. When paging through magazines under natural conditions, the stopping power of advertisements is crucial even if the flow of attention is stalled only briefly. Most ads do not make consumers call Martha, as the person in the opening quote did, but the instances where original ads make

consumers stop and look are critical. Ad originality buffers the negative effect of ad familiarity on visual attention to the advertisement as a whole and to the brand component. If ads are not original, familiar ads attract less attention than unfamiliar ones, illustrating attention wear-out. But, for original ads, familiar and unfamiliar ads attract the same amount of attention. This buffer effect of ad originality indicates that the executional tactics that make ads original are effective even after they have become familiar to consumers. In addition, ad originality promotes a significant, albeit small, improvement in brand memory. Moreover, ad originality and ad familiarity jointly promoted an accelerated effect on brand memory. Original ads attracted more attention, were better able to resist the attention drop due to ad familiarity, had a better memory performance and had the best memory performance when they were familiar. These findings support Mandler's theorising about the joint memory effects of familiarity and originality. They also provide strong support for practitioners' claims about the key role of ad originality in gaining and retaining consumers' attention and in promoting lasting traces of the brands in consumers' memory. Give the large sample of ads and the natural exposure conditions, our results have a considerable level of generality and relevance for the practice of mass advertising.

Text and Pictures when Advertisements Grow Familiar

One intriguing finding is that the buffer effect of ad originality applies to the brand component, but not to the pictorial and text components. Attention to the text of original and unoriginal ads is significantly different when the ads are unfamiliar but not so when the ads are familiar. The text of original ads initially attracts more attention, but quickly loses its surplus when the ads become familiar. This pattern is different for the pictorial. Attention to original and unoriginal ads is the same when both are unfamiliar, but pictures in original ads have built

up a surplus when the ads have already become more familiar. Instead of diminishing returns in pleasure or information value, they seem to exhibit increasing returns (Kahneman 1973; Berlyne, 1972) in our ad sample. Originality may allow more memory nodes to be established than can be accomplished in a single exposure. The maintenance of a richer network of multiple memory traces may be more difficult to achieve. Since originality enhances elaboration and promotes multiple pathways through which stimuli can be accessed, repeated exposures may be required to establish new memory nodes and to maintain the ones already established, facilitating retrieval (Anand and Sternthal 1990). We expect that while attention to the text is initially needed to understand the incongruity or "riddle" embedded in the ad, the solution to the riddle is stored in memory and easily retrieved upon later exposures. When the ad grows familiar, the picture becomes the index to the whole story that is embedded in the ad, and the meanings are stored around it. With the picture as a retrieval cue, continued attention to the text is unnecessary. This frees up time, that is devoted to exploring the pictorial further so that a few fixations on the pictorial suffice to further enforce and extend the rich connection of memory nodes established. This reasoning is in accordance with research on picture superiority effects (*e.g.*, Childers and Houston 1984). In further support, attention to the pictorial had a higher impact of subsequent memory performance than attention to the text, after controlling for their surface size. Our findings are not due to the fact that originality resided more in the pictorial than in the text of the ads. If such would be the case, we would have observed a positive main effect of originality on attention to the pictorial, and a negative main effect on attention to the text. But we actually found positive main effects for both the pictorial and the text, and the effect was even stronger for the text than for the pictorial.

Limitations and Future Research

This study is limited in several ways. First, we did not examine how visual attention and memory develop within advertisements when they become familiar. Instead, we examined differences in attention and memory between advertisements that differ in familiarity and originality. We cannot completely rule out that other, unmeasured variables that covary with ad familiarity and ad originality caused the attention and memory effects that we observed. In an effort to rule out important confounding variables, we controlled for brand familiarity, ad appeal, and the size of the advertisements and their key components. Our large sample of ads drastically diminishes the probability of coincidental confounding of ad characteristics with familiarity and originality. Still, follow-up research is desirable that examines the effect of ad familiarity on attention to original and unoriginal ads, by exposing consumers repeatedly to the same set of advertisements.

A second limitation is the broad conceptualisation and measurement of originality. The focus of this study was not on a comparison of specific techniques to create original ads, but on a comparison of original and unoriginal ads. The study is prompted by our observation of the firm but untested belief of advertising practitioners that original ads have systematic attention and memory advantages over unoriginal ads. We did not examine differences among creative sources of originality, and we operationalized originality as the number of experts that judged an ad to be original. We consider our findings a starting point for future research that could, for example, investigate the effect of pictorial versus textual techniques to created original ad executions on visual attention and memory.

A final limitation is that we have examined only fixation frequencies as measures of consumers' attention streams to advertising. Advertisements contain various spatially ordered pictorial and textual elements that jointly convey a message, and consumers fixate on the ad

elements in sequence, exhibiting specific scanpaths. Advertisers use a wide array of executional techniques to try and influence the frequency of fixations as well as their sequence. But hitherto, the role of visual layout and design features of advertisements in directing consumers' attention scanpaths has been researched only scarcely (Scott 1994ab). The research of Pieters, Rosbergen and Wedel (1999) indicates that scanpaths are established after a first exposure, where on subsequent exposures the eyes follow the same path across the ad. They concluded that once established in memory, the scanpath is difficult to change. Our results provide a first indication, that for original ads the scanpath does change over repeated exposures, since the relative amounts of attention paid to the ad elements differs among familiar and unfamiliar ads. However, given the cross sectional nature of this study, this can only be considered a first indication. Follow-up research may examine in more detail the determinants of attention scanpaths and how scanpaths affect brand memory and other down-stream advertising effects.

Our finding of significant, systematic differences between original and unoriginal ads in visual attention and memory at the current low levels of overall attention duration (a few seconds at most) has implications for future advertising research. In advertising research, consumers are commonly exposed to advertisements for a variable, unknown duration or for a fixed, long duration. Up to 10 or 15 seconds per ad are not uncommon. The present results show that it is important to record the exact amount of time that consumers devote to the ad, when consumers control exposure duration themselves. In addition, our findings show that advertising effects on attention and subsequent memory may occur in the first few glances of the exposure. Prolonging the exposure duration beyond the few glances that often occur under natural conditions may wash out the effects.

REFERENCES

Anand, Punam and Brian Sternthal (1990), "Ease of Message Processing as a Moderator of Repetition Effects in Advertising," *Journal of Marketing Research*, 27 (August), 245-353.

Albert, Robert S. and Mark A. Runco (1990), *Theories of Creativity*, Newbury Park, CA.: Sage Publications.

Baron, Reuben M. and David A. Kenny (1986), "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic and Statistical Considerations," *Journal of Personality and Social Psychology*, 51 (6), 1173-1182.

Batra, Rajeev, John G. Myers and David A. Aaker (1996), *Advertising Management*, Upper Saddle River, NJ: Prentice Hall, 5th edition.

Berlyne, Donald E. (1971), *Aesthetics and Psychobiology*, New York: Appleton-Century-Crofts.

Bryk, Anthony S. and Stephen W. Raudenbusch (1992), *Hierarchical Linear Models*, Newbury Park: Sage Publications.

Bryk, Antony S., Stephen Raudenbusch and Richard Congdon (1996), *Hierarchical Linear and Nonlinear Modeling with the HLM/2l and HLM/3l Programs*, Chicago, Il.: Scientific Software International.

Caples, John (1997), *Tested Advertising Methods*, Paramus, NJ: Prentice Hall, 5th edition.

Childers, Terry L. and Michael J. Houston (1984), "Conditions for a Picture-Superiority Effect on Consumer Memory," *Journal of Consumer Research*, 11 (September), 643-654.

Christie, John and Raymond Klein (1995), "Familiarity and Attention: Does What We Know Affect What We Notice?" *Memory and Cognition*, 23 (5), 547-550.

Cox, Dena S. and Anthony D. Cox (1988), "What does Familiarity Breed? Complexity as a Moderator of Repetition Effects in Advertisement Evaluation, *Journal of Consumer Research*, 15 (June), 111-116.

Cowan, Nelson (1995), *Attention and Memory: An Integrated Framework*, Oxford: Oxford University Press.

Craig, C. Samuel, Brian Sternthal, and Clark Leavitt (1976), "Advertising Wear-out: an Experimental Analysis," *Journal of Marketing Research*, 13 (4), 365-372.

Edell, Julie A. and Richard Staelin (1983), "The Information Processing of Pictures in Print Advertisements," *Journal of Consumer Research*, 10 (June), 45-61.

Feustel, Timothy C., Richard M. Shiffrin, and Aita Salassoo (1983), "Episodic and Lexical Contributions to the Repetition Effect in Word Identification," *Journal of Experimental Psychology: General*, 112 (September), 309-346.

Finn, Adam (1988), "Print Ad Recognition Readership Scores: An Information Processing Perspective," *Journal of Marketing Research*, 25 (May), 168-177.

Friedman, Alinda (1979), "Framing Pictures: The Role of Knowledge in Automatized Encoding and Memory for Gist," *Journal of Experimental Psychology: General*, 108 (3), 316-355.

Goldstein, Harvey (1995), *Multilevel Statistical Models*, London: Arnold Publishers

Grass, Robert and Wallace H. Wallace (1969), "Satiation Effects of Television Commercials," *Journal of Advertising Research*, 9 (September), 3-8.

Greenberg, Allan and Charles Suttoni (1973), "Television Commercial Wearout," *Journal of Advertising Research*, 13 (October), 47-54.

Gross, Irwin (1972), "The Creative Aspects of Advertising," *Sloan Management Review*, 14 (1), 83-109.

Haugtvedt, Curtis, P. David W. Schumann, Wendy L Schneier and Wendy L. Warren (1994), "Advertising Repetition and Variation Strategies: Implications for Understanding Attitude Strength," *Journal of Consumer Research*, 21 (June), 176-189.

Heckler, Susan E. and Terry L. Childers (1992), "The Role of Expectancy and Relevancy in Memory for Verbal and Visual Information," *Journal of Consumer Research*, 18 (March), 475-492.

Higgins, Denis (1965), *The Art of Writing Advertising*, Lincolnwood, Ill.: NTC Business Books.

Holbrook, Morris B. and Donald R. Lehmann (1980), "Form versus Content in Predicting Starch Scores," *Journal of Advertising Research*, 20 (4), 53-62.

Houston, Michael J. Terry L. Childers and Susan E. Heckler (1987), "Picture-Word Consistency and the Elaborative Processing of Advertisements," *Journal of Marketing Research*, 24 (November), 359-369.

Hyönä, J. and P. Niemi (1990), "Eye Movements in Repeated Reading of a Text", *Acta Psychologica*, 73, 259-280.

Janiszewski, Chris (1998), "The Influence of Display Characteristics on Visual Exploratory Search Behavior," *Journal of Consumer Research*, 25 (November), 290-301.

Kahneman, Daniel (1973), *Attention and Effort*, Englewood Cliffs, NJ: Prentice-Hall.

Keller, Kevin Lane (1998), *Strategic Brand Management: Building, Measuring, and Managing Brand Equity*, Upper Saddle River, NJ: Prentice Hall.

Kolers, Paul A. (1976), "Reading a Year Later," *Journal of Experimental Psychology: Human Learning and Memory*, 2 (5), 554-565.

Kover, Arthur J. (1995), "Copywriters' Implicit Theories of Communication: An Exploration," *Journal of Consumer Research*, 21 (March), 596-611.

Krishnan, H. Shankar and Dipankar Chakravarti (1999), "Memory Measures for Pretesting Advertisements: An Integrative Conceptual Framework and a Diagnostic template," *Journal of Consumer Psychology*, 8 (1), 1-37.

Kroeber-Riel, Werner (1993), *Bildkommunikation: Imagerystrategie für die Werbung*, München: Franz Vahlen

Krugman, Herbert E. (1972), "Why Three Exposures May be Enough," *Journal of Advertising Research*, 12 (6), 11-14.

Loftus, Geoffrey R. (1983), "Eye Fixations on Text and Scenes," in R.A. Monty and J.W. Senders (eds.), *Eye Movements and Psychological Processes*, Hillsdale, NJ: Lawrence Erlbaum, 359-376.

Long, J. Scott (1997), *Regression Models for Categorical and Limited Dependent Variables*, Thousand Oaks, CA: Sage Publications.

Mandler, George (1979), "Organization and Repetition: Organizational Principles with Special Reference to Rote Learning," in Lars-Goeran Nilsson (ed.), *Perspectives on Memory Research*, Hilsdale, NJ: Lawrence Erlbaum, 293-327.

Mandler, George (1982), "The Structure of Value: Accounting for Taste," in Margaret Sydnor Clark and Susan F. Fiske (eds.), *Affect and Cognition: the Seventeenth Annual Carnegie Symposium on Cognition*, Hillsdale, NJ: Lawrence Erlbaum, 3-36.

Mandler, George (1995), "Origins and Consequences of Novelty," in Steven M. Smith, Thomas B. Ward, and Ronald A. Finke (eds.), *The Creative Cognition Approach*, Cambridge, Mass: The MIT Press, 9-25.

McQuarrie, Edward F. (1989), "Advertising Resonance: a Semiological Perspective," in Elisabeth C. Hirschman (ed.), *Interpretative Consumer Research*, Provo, UT: Association for Consumer Research, 97-114.

McQuarrie, Edward F. and David Glen Mick (1996), "Figures of Rhetoric in Advertising Language," *Journal of Consumer Research*, 22 (March), 424-437.

McQuarrie, Edward F. and David Glen Mick (1999), "Visual Rhetoric in Advertising: Text-Interpretative, Experimental, and Reader-Response Analyses," *Journal of Consumer Research*, 26, 37-54.

Meyers-Levy, Joan and Alice M. Tybout (1989), "Schema Congruity as a Basis for Product Evaluation," *Journal of Consumer Research*, 16 (June), 39-54.

Moriarty, Sandra E. (1986), *Creative Advertising: Theory and Practice*, Englewood Cliffs, NJ: Prentice Hall.

Morrison, Bruce J. and Marvin J. Dainoff (1972), "Advertisement Complexity and Looking Time," *Journal of Marketing Research*, 9 (November), 396-400.

Muller, P., D. Cavegn, G. d'Ydewalle, and R. Groner (1993), "A Comparison of a New Limbus Tracker, Corneal Reflection Technique, Purkinje Eye Tracking and Electro-Oculography," in G. d'Ydewalle and J. Van Rensbergen (eds.), *Perception and Cognition: Advances in Eye-Movement Research*, Amsterdam: Elsevier, 393-401.

Ogilvy, David (1983), *Ogilvy on Advertising*, London: Pan Books.

Olney, Thomas J., Morris B. Holbrook and Rajeev Batra (1991), "Consumer Responses to Advertising: The Effects of Ad Content, Emotions, and Attitude toward the Ad on Viewing Time," *Journal of Consumer Research*, 17 (March), 440-453.

Pechmann, Cornelia and David W. Stewart (1989), "Advertising Repetition: A Critical Review of Wearin ad Wearout," *Current Issues and Research in Advertising*, 11 (1-2), 285-330.

Pieters, Rik, Edward Rosbergen and Michel Wedel (1999), "Visual Attention to Repeated Print Advertising: a Test of Scanpath Theory," *Journal of Marketing Research* (November).

Pratkanis, Anthony R. and Anthony G. Greenwald (1988), "Recent Perspectives on Unconscious Processing: Still No Marketing Applications," *Psychology and Marketing*, 5, 337-353.

Rayner, Keith (1998)," Eye Movements and Information Processing: 20 Years of Research," *Psychological Bulletin*, 124 (3), 372-422.

Richardson-Klavehn, Alan A. and Robert A. Bjork (1988), "Measures of Memory," *Annual Review of Psychology*, 39, 475-543.

Rosbergen, Edward, Rik Pieters and Michel Wedel (1997), "Visual Attention to Advertising: a Segment-Level Analysis," *Journal of Consumer Research*, 24 (December), 305-314.

Rossiter, John R. and Larry Percy (1997), *Advertising Communication and Promotion Management*, New York: McGraw-Hill.

Scott, Linda M. (1994a), "Images in Advertising: The Need for a Theory of Visual Rhetoric," *Journal of Consumer Research*, 21 (September), 252-273

Scott, Linda M. (1994b), "The Bridge from Text to Mind: Adapting Reader-Response Theory to Consumer Research," *Journal of Consumer Research*, 21 (December), 461-480.

Sperling, George and Erich Weichselgartner (1995), "Episodic Theory of the Dynamics of Spatial Attention," *Psychological Review*, 102, 503-532.

Stewart, David (1992), "Speculations on the Future of Advertising Research," *Journal of Advertising*, 21 (3), 1-18.

Wedel, Michel and Rik Pieters (1999) "How Eye Fixations on Advertisements Build Memory for Brands: Model and Findings," Unpublished paper, University of Groningen.

White, Gordon E. (1972), "Creativity: the X Factor in Advertising Theory," *Journal of Advertising*, 1 (1), 28-32.

Yarbus, Alfred L. and Basil Haigh (1967), *Eye Movement and Vision*, New York: Plenum.

Zinkhan, George (1993), "Creativity in Advertising: Creativity in the Journal of Advertising," *Journal of Advertising*, 22 (2), 1-3.

TABLE 1
VISUAL ATTENTION AND BRAND MEMORY
ACROSS PARTICIPANTS AND ADVERTISEMENTS

Measure	Overall	Ad familiarity		Ad originality	
		No	Yes	No	Yes
Fixation frequency on ad as a whole	8.39	8.68	7.85	7.76	10.28
Fixation density on ad as a whole [1]	1.90	1.97	1.77	1.85	2.06
Fixation frequency on brand	1.44	1.41	1.51	1.45	1.43
Fixation density on brand	3.89	4.08	3.46	3.66	4.58
Fixation frequency on pictorial	3.70	3.80	3.49	3.24	5.08
Fixation density on pictorial	1.14	1.12	1.18	1.10	1.26
Fixation frequency on text	3.24	3.43	2.85	3.06	3.78
Fixation density on text	4.96	5.91	3.01	4.71	5.70
Accurate brand memory	.24	.17	.38	.23	.26

		Ad familiarity			
		No		Yes	
		Ad originality		Ad originality	
		No	Yes	No	Yes
Fixation frequency on ad as a whole		7.99	10.49	7.29	9.77
Fixation density on ad as a whole		1.94	2.03	1.67	2.11
Fixation frequency on brand		1.50	1.17	1.35	2.05
Fixation density on brand		3.88	4.67	3.19	4.34
Fixation frequency on pictorial		3.43	4.87	2.88	5.58
Fixation density on pictorial		1.11	1.15	1.07	1.54
Fixation frequency on text		3.06	4.46	3.06	2.13
Fixation density on text		5.61	6.74	2.95	3.21
Accurate brand memory		.18	.14	.33	.56
Number of advertisements	68	34	12	17	5

TABLE 2
THE IMPACT OF AD FAMILIARITY AND ORIGINALITY ON VISUAL ATTENTION TO PRINT ADVERTISING:

	Fixation frequency on advertisement as a whole			Fixation frequency on brand			Fixation frequency on pictorial			Fixation frequency on text		
Parameter	coefficient	*t*-value	$p > \|t\|$	coefficient	*t*-value	$p > \|t\|$	coefficient	*t*-value	$p > \|t\|$	coefficient	*t*-value	$p > \|t\|$
Constant	1.083	20.269	<.001	-.352	-6.037	<.001	.084	1.525	.127	.504	8.171	<.001
Surface size (dm^2)	.214	32.311	<.001	1.185	31.691	<.001	.291	33.121	<.001	.819	24.417	<.001
Brand familiarity	.017	-.703	.482	.064	1.467	.142	-.183	5.593	<.001	.225	6.997	<.001
Ad appeal	-.010	-.423	.672	.251	6.509	<.001	.030	.953	.341	.045	1.400	.162
Ad familiarity	-.114	-4.511	<.001	-.071	-1.645	.100	.110	3.161	.002	-.506	-14.975	<.001
Ad originality	.092	3.806	<.001	.107	2.551	.011	.148	4.747	<.001	.262	8.079	<.001
Model $\chi^2(5)$:		1020.22	<.001		1683.78	<.001		1437.06	<.001		920.76	<.001
Ad familiarity * ad origin.	.191	3.921	<.001	.517	6.468	<.001	.440	7.197	<.001	-.381	-5.013	<.001
$\chi^2(1)$ - improvement		46.50	<.001		39.42	<.001		124.12	<.001		50.70	<.001

TABLE 3
MODEL TESTS OF DIRECT AND INDIRECT EFFECTS OF
AD FAMILIARITY AND ORIGINALITY ON BRAND MEMORY

	Predictors in the models						
Model	Surface size of ad components	Fixation frequency on ad components	Ad familiarity, originality, covariates	Interaction of ad familiarity and originality	Model χ^2	*df*	$p < \lvert\chi^2\rvert$
1	Yes	No	No	No	46.38	3	<.001
2	Yes	Yes	No	No	84.12	6	<.001
3	No	No	Yes	No	48.74	4	<.001
4	No	No	Yes	Yes	105.24	5	<.001
5	Yes	Yes	Yes	No	93.78	10	<.001
6	Yes	Yes	Yes	Yes	153.38	11	<.001
	Model Comparisons						
	Model 2 - Model 1				37.74	3	<.001
	Model 4 - Model 3				56.50	1	<.001
	Model 5 - Model 2				9.66	4	.05
	Model 5 - Model 3				45.04	6	<.001
	Model 6 - Model 4				48.14	6	<.001
	Model 6 - Model 5				59.60	1	<.001

TABLE 4
INFLUENCE OF VISUAL ATTENTION,
AD FAMILIARITY AND ORIGINALITY ON BRAND MEMORY

Parameter	coefficient	*t*-value	$p > \|t\|$
Constant	-2.287	-17.196	<.001
Surface of brand (dm^2)	.064	.773	.440
Surface of pictorial (dm^2)	-.053	-2.418	.016
Surface of text (dm^2)	-.280	-3.516	.001
Brand familiarity	1.055	12.916	<.001
Ad appeal	.056	.846	.398
Fixation frequency on brand	.092	7.821	<.001
Fixation frequency on pictorial	.024	4.117	<.001
Fixation frequency on text	.018	2.558	.011
Ad familiarity	1.870	21.964	<.001
Ad originality	.207	3.008	.003
Ad familiarity * ad originality	1.204	8.616	<.001

FIGURE 1
TWO ORIGINAL (TOP) AND TWO UNORIGINAL (BOTTOM) ADS
FROM THE SAMPLE

FIGURE 2
EFFECT OF AD FAMILIARITY AND ORIGINALITY
ON VISUAL ATTENTION TO ADVERTISEMENTS

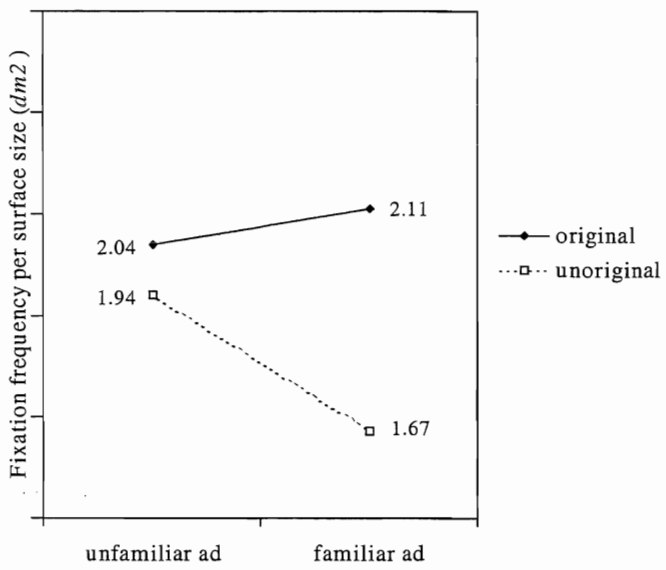


FIGURE 3
EFFECT OF AD FAMILIARITY AND ORIGINALITY
ON VISUAL ATTENTION TO THE BRAND

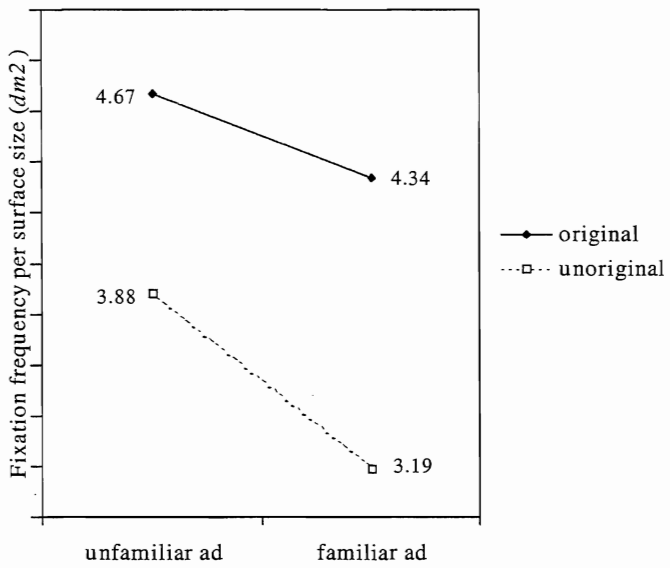


FIGURE 4
EFFECT OF AD FAMILIARITY AND ORIGINALITY
ON VISUAL ATTENTION TO PICTORIAL

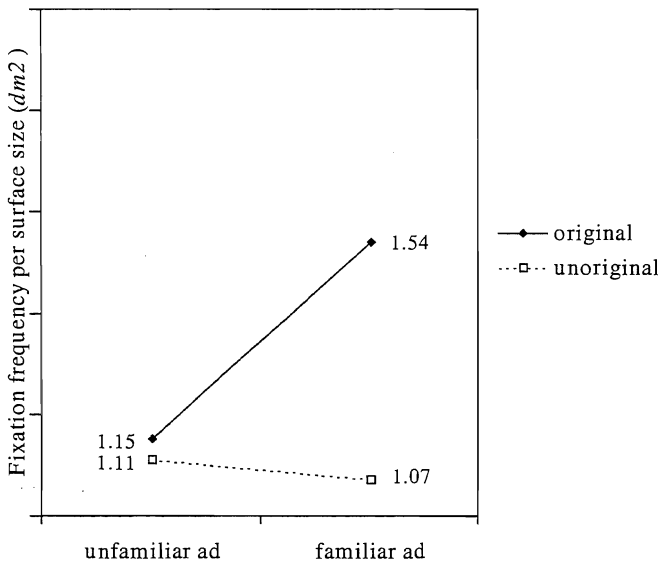


FIGURE 5
EFFECT OF AD FAMILIARITY AND ORIGINALITY
ON VISUAL ATTENTION TO TEXT

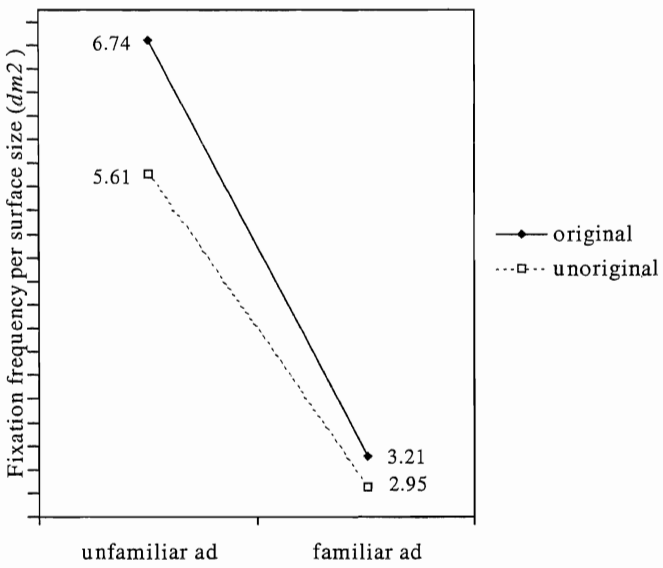
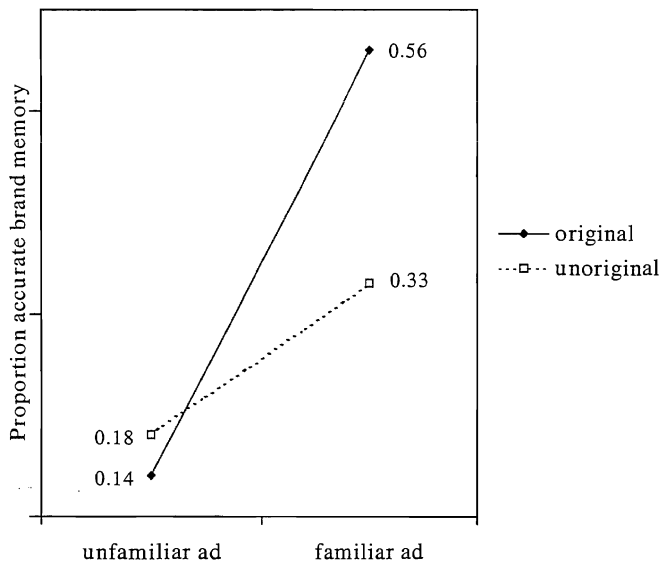


FIGURE 6
EFFECT OF AD FAMILIARITY AND ORIGINALITY
ON BRAND MEMORY



FOOTNOTE

[1] The following hierarchical Poisson model was estimated:

Level-1 Model

$E(Y|B) = L$

$V(Y|B) = L$

$log(L) = B_0 + \sum BX$

Level-2 Model

$B_0 = G_{00} + U_0$

Level-1 variance = σ^2/L (to account for overdispersion = extra-Poisson variation).

The 68 ads (level-1) are nested in the 119 consumers (level-2).